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PENDING CLAIMS

1. (canceled)

2. (currently amended) ~~The~~A method of claim 1, ~~and if the good address mark is not found during the first read gate period, then prior to the identifying step the transducer polarity detection routine further comprising:~~

performing a transducer polarity detection routine comprising the steps of:

searching for a good address mark signal during a first read gate period with a channel polarity set to a first polarity;

toggling the polarity of the channel to a second polarity if the good address mark is not found during the first read gate period; and

searching for the good address mark during a second read gate period with the channel polarity set to the second polarity; and

identifying a polarity of a transducer based upon the channel polarity when the good address mark is detected.

3. (previously presented) The method of claim 2, wherein the transducer polarity detection routine further comprises repeating the steps of searching for the good address mark during subsequent read gate periods until the good address mark is found, the polarity of the channel being toggled between the first and second polarities after the completion of each read gate period in which the good address mark is not found.

4. (currently amended) The method of claim 3, ~~wherein and further comprising setting the a read gate period duration to the a first value further comprises~~by setting a servo gate period duration to a time corresponding to a predetermined number of servo sectors.

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5. (original) The method of claim 4, wherein the steps of searching for the good address mark signal further comprise:

determining whether an address mark has been detected;
de-asserting the read gate if it is determined that an address mark has been detected; and
determining whether the detected address mark qualifies as the good address mark.

6. (previously presented) The method of claim 5, wherein if it is determined that the detected address mark qualifies as the good address mark, the transducer polarity detection routine further comprising setting the servo gate period duration to a time corresponding to one servo sector.

7. (previously presented) The method of claim 3, and further comprising:

performing the transducer polarity detection routine for each of a plurality of transducers
to determine a polarity for each transducer; and
storing the polarity for each of the plurality of transducers.

8. (previously presented) The method of claim 7, and further comprising:

determining if a predetermined number of consecutive errors have occurred; and
if the predetermined number of consecutive errors have occurred, then performing the
transducer polarity detection routine to determine whether a polarity flip has
occurred.

9. (previously presented) The method of claim 8, and further comprising updating the stored polarity for any transducer which is determined to have had a polarity flip.

10. (canceled)

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11. (currently amended) ~~The~~An apparatus of claim 10, and if the good address mark is not found during the first read gate period, then prior to the identifying step the transducer polarity detection routine further comprising:

a transducer;

a channel coupled to the transducer; and

circuitry coupled to the channel and configured to perform a transducer polarity detection routine comprising the steps:

searching for a good address mark signal using the transducer during a first read gate period with a channel polarity set to a first polarity;

toggling the polarity of the channel to a second polarity if the good address mark is not found during the first read gate period; and

searching for the good address mark during a second read gate period with the channel polarity set to the second polarity; and

identifying a polarity of the transducer based upon the channel polarity when the good address mark is detected.

12. (previously presented) The apparatus of claim 11, wherein the transducer polarity detection routine further comprises repeating the steps of searching for the good address mark during subsequent read gate periods until the good address mark is found, the polarity of the channel being toggled between the first and second polarities after the completion of each read gate period in which the good address mark is not found.

13. (currently amended) The apparatus of claim 12, ~~wherein~~and further comprising setting the a read gate period duration to ~~the a~~a first value further comprises by setting a servo gate period duration to a time corresponding to a predetermined number of servo sectors.

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14. (previously presented) The apparatus of claim 13, wherein the transducer polarity detection routine steps of searching for the good address mark signal further comprise:

determining whether an address mark has been detected;
de-asserting the read gate if it is determined that an address mark has been detected; and
determining whether the detected address mark qualifies as the good address mark.

15. (previously presented) The apparatus of claim 14, wherein if it is determined that the detected address mark qualifies as the good address mark, the transducer polarity detection routine further comprising setting the servo gate period duration to a time corresponding to one servo sector.

16. (previously presented) The apparatus of claim 12, and further comprising a plurality of transducers, wherein the circuitry is further configured to perform a method comprising:

performing the transducer polarity detection routine for each of the plurality of transducers to determine a polarity for each transducer; and
storing the polarity for each of the plurality of transducers.

17. (previously presented) The apparatus of claim 16, wherein the method further comprises:

determining if a predetermined number of consecutive errors have occurred; and
if the predetermined number of consecutive errors have occurred, then performing the transducer polarity detection routine to determine whether a polarity flip has occurred.

18. (previously presented) The apparatus of claim 17, wherein the method further comprises updating the stored polarity for any transducer which is determined to have had a polarity flip.